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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/716,117

11/18/2003

Yasushi Inda

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EXAMINER

ECHELMeyer, ALIX ELIZABETH

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

12/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/716,117	Applicant(s) INDA, YASUSHI	
	Examiner Alix Elizabeth Echelmeyer	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6 and 8-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6 and 8-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 9, 2007 has been entered.
2. Claim 1 has been amended. Claim 2 has been cancelled. Claims 1, 3-6 and 8-17 are pending and are rejected for the reasons given below.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-6 and 8-15 are rejected under 35 U.S.C. 103(a) as being obvious over Inda et al. (US 6,475,677).

Inda et al. teach a lithium ion conductive glass-ceramic composite electrolyte for a lithium battery (abstract, column 4 lines 54-58). The electrolyte layer has a thickness less than 100 μm (column 2 lines 2-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the electrolyte layer less than 20 μm thick, since it is known that making the electrolyte thinner will reduce ionic resistivity in the layer.

As for claims 3, 14 and 15, Inda et al. teach that the electrolyte is formed into a film by casting and then drying in a vacuum (column 6 lines 4-6). The film is then placed between the two electrodes and the assembly is adhered together by a laminator (column 7 lines 22-25). The product-by process limitations of the claims requiring that the solid electrolyte is "formed on an electrode" are not given patentable weight. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985), MPEP 2113. In the instant case, the assembly of Inda et al. matches the product of claims 3, 14 and 15, since the electrolyte layer adhered to the electrodes.

With further regard to claim 15, and regarding claims 6 and 8, Inda et al. teach that the lithium ion conductive substance is formed of glass-ceramic containing crystals (column 4 lines 54-57).

As for claim 4, the lithium ion conductivity of the lithium ion conductive substance is 1×10^{-5} S/cm or over (abstract).

Regarding claim 5, Inda et al. teach that the glass ceramic in the electrolyte is preferably 10-90% by weight (column 2 lines 43-44; column 4 lines 34-53). In one example, the glass ceramic is included at 40% by weight (column 9 lines 29-33).

As for claims 9-11, Inda et al. teach that the electrolyte contains the glass-ceramic powder (column 2 lines 36-30; column 4 lines 58-63). The particle size of the powder is less than 20 μm (column 2 lines 32-33).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the particles 1.0 μm or below, since it is well known in the art that lowering particle size increases the available surface area, allowing for more conduction of lithium ions.

As for claims 12 and 13, Inda et al. teach that the solid electrolyte includes the glass-ceramic and lithium salts in a polymer medium (column 2 lines 36-39; column 3 lines 63-67; column 4 lines 9-16).

5. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inda et al. in view of Kosuzu et al. (US 2003/0157407).

The teachings of Inda et al. as discussed above are incorporated herein.

Inda et al. teach a lithium ion secondary battery with a glass-ceramic containing electrolyte (abstract). The negative electrode of Inda et al. may contain an alloy of lithium (column 5 lines 26-29). Inda et al. fail to teach that the lithium alloy is a powder having a particle diameter of 3 μm or below.

Kosuzu et al. teach a negative electrode material for a rechargeable lithium battery having a solid electrolyte (abstract; [0222]).

Kosuzu teach a lithium silicon compound having a particle size of 0.1 μm to 0.5 μm (abstract; [0020]).

Kosuzu et al. further teach that the compound and particle size are desirable because they increase the capacity of the anode since lithium is inserted at a high electricity quantity of more than 1000mAh/g ([0018]).

It would be desirable to use the compound of Kosuzu et al. in the particle size taught since it would increase the capacity of the anode since lithium is inserted at a high electricity quantity of more than 1000mAh/g.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the compound of Kosuzu et al. in the particle size taught since it would increase the capacity of the anode since lithium is inserted at a high electricity quantity of more than 1000mAh/g.

Response to Arguments

6. Applicant's arguments filed October 9, 2007 have been considered but are moot in view of the new ground of rejection, see above.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1795

aee


SUSY TSANG-FOSTER
SUPERVISORY PATENT EXAMINER